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EXAMINER
KRECK, JOHN J

ART UNIT	PAPER NUMBER
3673	

DATE MAILED: 04/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/818,117	Applicant(s) CHOI, ET AL.
	Examiner John Kreck	Art Unit 3673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-29 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-29 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12-16, and 23 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 12-16 are unclear regarding "device is located at a depth below the water surface substantially unaffected by waves and surface currents..." It is unclear whether this means the device is unaffected, or whether there are no wave effects at that depth. It is known that during heavy storms, waves can affect the water to very great depths. As the depth increases, the effects lessen to the point where they might not affect a buoy; but may still be measurable.

Claim 23 is unclear because it calls for the tank to be "atmospheric pressure". It is apparent from the specification that the invention is a pressure balanced tank.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 2, 3, 4, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Hix, Jr. (U.S. Patent number 3,835,653).

Hix shows an oil storage and off take system comprising a storage tank attachable to a seabed and adapted to store hydrocarbons; at least one fluid channel (44) having a first end inside the bottom of the tank and a second end in communication with seawater; at least one offload line having a first end coupled to the tank and a second end adapted to be coupled to a tanker and accessible from the surface; and at least on hawser (26) having a first end coupled to the tank and a second end adapted to be accessible form the surface and attachable to a tanker as called for in claim 1.

Hix also shows the tank adapted to store oil on water as called for in claim 2.

Hix also shows the second end disposed away from the seabed as called for in claim 3.

Hix also shows the offload having a substantially rigid lower portion and a flexible upper portion as called for in claim 4.

Hix also shows the weighing material (see col. 2, line 14) sufficient to overcome buoyant forces as called for in claim 22.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-12, 17-22, and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manning (U.S. Patent number 3,479,673) in view of Hix, Jr.

Manning teaches an oil storage and off take system comprising a storage tank attachable to the seabed (12); at least one offload line; and at least one hawser. Manning fails to teach the fluid channel in communication with the seawater. It is well known in the art of ocean engineering to equip undersea oil storage tanks with seawater intakes, in order to keep pressure within the tank equalized, and thus to reduce construction costs at great depths. Hix shows this, for example.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the Manning tank to have at least one fluid channel having a first end in the tank and a second end in communication with seawater as called for in claim 1; in order to keep pressure within the tank equalized, and thus to reduce construction costs at great depths.

With regards to claim 2; it would have been further obvious to one of ordinary skill in the art at the time of the invention to have made the tank adapted to store oil on water, in order to keep pressure within the tank equalized.

With regards to claim 3; it would have been further obvious to one of ordinary skill in the art at the time of the invention to have made the fluid channel at a location away from the seabed, in order to keep sediment out of the tank.

Manning also shows the rigid lower portion and flexible upper portion as called for in claim 4.

Manning also shows the top tensioned riser as called for in claim 5.

Manning also shows the subsurface buoyant device as called for in claim 6.

Manning also shows the flexible line coupled proximal one end to a surface buoyant device as called for in claim 7.

Manning also shows the first end of the hawser coupled to the riser and the second end coupled to the surface buoyant device as called for in claim 8.

Manning also shows the hawser coupled to the subsurface buoyant device as called for in claim 9.

Manning also shows the coupling device (24) as called for in claim 10.

Manning also shows the hose as called for in claim 11.

Manning also shows the subsurface buoyant device located at a depth below the water surface substantially unaffected by waves and surface currents of a selected storm magnitude (for example, a storm magnitude of "0") as called for in claim 12.

With regards to claim 17; Manning shows the opening (near 106).

With regards to claim 18; Manning shows the coupling above the subsurface buoyant device; however, it would have been obvious to one of ordinary skill in the art at the time of the invention to have located the coupling between the buoyant device and the riser as called for in claim 18, in order to reduce stress on the riser.

Manning also shows the coupling device (24) as called for in claim 19.

With regards to claim 20; Manning fails to show the weighting material. Hix teaches the use of such weighting material, in order to prevent the tank form drifting. It would have been obvious to one of ordinary skill in the art at the time of the invention to

have used a weighting material as called for in claim 20, in order to prevent the tank from drifting.

With regards to claim 21, it would have been obvious to one of ordinary skill in the art at the time of the invention to have use sand, because sand is inexpensive and easy to handle.

With regards to claim 22; Manning fails to show the weighting material. Hix teaches the use of such weighting material, in order to prevent the tank form drifting. It would have been obvious to one of ordinary skill in the art at the time of the invention to have used a weighting material as called for in claim 22, in order to prevent the tank from drifting.

With regards to claims 24-26; Manning fails to teach the capacity or size; however it is well known to construct tanks based on expected operating parameters; thus it would have been obvious to one of ordinary skill in the art at the time of the invention to have made the tank greater than 500,000 barrels as called for in claim 24; or greater than 750,000 barrels as called for in claim 25; or 200 feet by 200 feet and 150 feet tall as called for in claim 26.

3. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manning and Dix as applied to claim 12 above, and further in view of Braud, et al. (U.S. Patent number 5,816,183).

Mannind fails to teach the buoy below a depth substantially unaffected by storms.

Braud teaches a similar system which has a submerged buoy to protect it from wave action. It is apparent that the depth of the buoy is dependent upon expected wave conditions.

It would have been further obvious to one of ordinary skill in the art at the time of the invention to have the subsurface buoyant device at a depth substantially unaffected by waves of a 1-year storm magnitude as called for in claim 13; or a 10-year storm as called for in claim 14; in order to prevent storm damage. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the subsurface buoyant device at least 50 feet below the surface as called for in claim 15, or 200 feet below the surface as called for in claim 16, in order to prevent storm damage.

4. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Manning and Dix as applied to claim 1 above, and further in view of Phelps (U.S. Patent number 3,645,415).

Manning fails to disclose the web framed steel construction. Web framed steel construction is known for use constructing tanks, because it is durable. It would have been obvious to one of ordinary skill in the art at the time of the invention to have made the tank form web framed steel as called for in claim 23, in order to make it durable.

5. Claims 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hix, Jr. in view of Anderson (U.S. Patent number 4,273,066).

Hix teaches an oil storage and off take system comprising a storage tank; at least one fluid channel in communication with the environment outside the tank and weighting

material inside the tank. Hix shows a connection to the surface at 38, but fails to show any details such as tensioned riser, hawser, and coupling device.

Anderson shows a system for transporting oil from an underwater location to a tanker. (see figures 4 and 7a) The Anderson system includes a tensioned riser (32) coupled to a subsurface buoy (41); a flexible hose (44) in communication with the riser, the hose having a first end coupled to the riser and a second end coupled to a surface buoy (Col. 14, lines 20-40); a hawser having a first end coupled to the second end of the riser and a second end coupled to the surface buoy (Col. 14, lines 20-40), the hawser having a length less than the hose; and at least one coupling device (39) between the riser and hose to allow rotation. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the Hix system to have included the tensioned riser; hose; mooring chain; surface buoy; and coupling device, as called for in claim 27, and as taught by Anderson, in order to allow the oil to be loaded onto a tanker.

With regards to claim 28, Hix teaches concrete (40) which comprises sand.

With regards to claim 29; Hix fails to teach the capacity or size; however it is well known to construct tanks based on expected operating parameters; thus it would have been obvious to one of ordinary skill in the art at the time of the invention to have made the tank 200 feet by 200 feet and 150 feet tall and having a capacity of about 750000 barrels as called for in claim 29.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Van Heijst (U.S. Patent number 4,069,529); Ortloff, et al. (U.S.

Patent number 4,604,961); and Kentosh (U.S. Patent number 4,138,751) show similar systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Kreck whose telephone number is (703)308-2725. The examiner can normally be reached on 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather Shackelford can be reached on (703)308-2978. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-3597 for regular communications and (703)305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)306-4177.

HEATHER SHACKELFORD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

JJK
April 15, 2002